To assess by videofluoroscopy swallowing radio-induced dysfunction

I. Prieto[1], R. Gutierrez[2], A. Chavez[3], A. Perez[3]
[1] *Fundación Jiménez Díaz, Clínica Ntra. Sra. de la Concepción, Oncología Radioterápica*
[2] *Hospital Rey Juan Carlos I, Otorrinolaringología*
[3] *Fundación Jiménez Díaz, Clínica Ntra. Sra. de la Concepción*

Purpose. Head and neck cancer treatment is associated with significant morbidities. Both exclusive radiotherapy (RT) and chemoradiotherapy (CHRT) treatments can produce, as side effects, increased rates of long-term dysphagia. The purpose of the study here presented was to evaluate the ability of videofluoroscopy (VDF) in detecting and measuring swallowing dysfunction secondary to treatments.
Methods and materials. Eight head-and-neck cancer patients, who underwent radical RT till 70 Gy (5 fractions per week, 2 Gy per fraction), and concurrent chemotherapy (CHT) when indicated, were included. Treatment schedules administered to each patient (RT total dose, radiation fields, delivery techniques, CHT schemes) were decided according the NCCN recommendations. Half of patients received exclusive RT and the other half concomitant CHRT. In order to evaluate a possible swallowing dysfunction, VDF were performed before and after the treatment. Patients presenting swallowing dysfunction before the treatment were excluded. Post-treatment evaluation was undertaken twice: early (1–3 months) and late post-therapy (4–9 months). The VDF explored swallowing dysfunction with the standard different textures.
Results. 3 patients developed some swallowing dysfunction in early post-therapy evaluation and, in the late post-therapy evaluation, 7 patients showed propulsive defect of the pharynx and 6 of them had also residue. Only one patient had symptoms related to this dysfunction. No case of pneumonia by aspiration was reported.
Conclusions. Swallowing dysfunction is a prevalent side effect after intensive RT and CHRT treatment in head-and-neck cancer patients. In our first 8 patients included, most frequent swallowing dysfunction was the propulsive defect of the pharynx asymptomatic in most of the cases. VDF was very effective in detecting, measuring and controlling this side effect. However, in order to confirm these results, inclusion of more patients is required. Therefore, patient enrolment continues.

http://dx.doi.org/10.1016/j.rpor.2013.03.290

Tomotherapy: Primary/recurrent head and neck cancer in previously irradiated volume

M. Pagola Divassón, D. Ortiz de Urbina, J. Mazabuel Quintana, J. Rosa Nieto
Instituto Oncológico, Oncología Radioterápica

Introduction. Radiation therapy is an effective treatment in primary/recurrent head and neck cancer (HNC) arising in previously irradiated volumes (PIVs) but severe late toxicities have been related.
Objective. To assess the efficacy and toxicity of Helical Tomotherapy (HT) as re-irradiation treatment in primary/recurrent HNC in PIVs.
Materials and methods. From August 2009 to February 2013, 20 HNC patients with prior-radiation have been re-treated with HT. A median age of 62 years (range, 41–79 years). Sixty-five percent of tumors were recurrences emerging in PIVs: skull base ($n=4$), pharynx ($n=3$), oral cavity ($n=1$), nasopharynx ($n=1$), nodal cervical area ($n=1$), facial area ($n=2$), tiroid area ($n=1$). Thirty-five percent were second primary tumors in PIVs: nasopharynx ($n=2$), oropharynx ($n=2$), oral cavity ($n=1$), hypopharynx ($n=1$), and nasal fossa ($n=1$). Six patients (30%) underwent surgical resection prior re-irradiation. Previous dosimetry (dose distriburion, prescrioption dose and dose delivered to organs at risk) was taken into account in re-irradiation treatment planning. Concomitant/neoadyuvant platinum-based chemotherapy was administrated in 55% of patients. Toxicities were documented according to the RTOG scoring criteria.
Results. Median follow-up was 9 months (range, 1–37 months). The median radiation dose in patients with surgical resection ($n=6$) was 63 Gy (range, 48.6–70 Gy), two patients received 70 Gy for gross tumor in surgical margin. The patients with irresectable tumor ($n=14$) received a median radical doses of 68.3 Gy (range, 52–70.2 Gy). The relevant toxicity RTOG ≥ 3 was: acute toxicity: grade 3: 25% (radiodermatitis $n=2$, mucositis $n=3$); Grade 4–5: 0%; Late toxicity (evaluated in 16 patients due to the limited time of follow-up) was: Grade 3: 13% (xerostomia: $n=1$, aplasia $n=1$); Grade 4–5: 0%. At time of analysis 2 local progressions, 3 locorregional and 7 distant failures have been observed.
Conclusions. According to our data, HT could be considered as a radiation option in patients previously irradiated as showed by an acceptable profile of toxicity.

http://dx.doi.org/10.1016/j.rpor.2013.03.291

Treatment with intensity modulated radiation therapy (IMRT) for nasopharyngeal carcinoma

M. Pagola Divassón, D. Ortiz de Urbina, E. Saenz de Urturi, J. Rosa Nieto
Instituto Oncológico, Oncología Radioterápica

Introduction. IMRT allows normal tissue preservation of uninvolved anatomical structures immediately adjacent to the tumor in nasopharyngeal carcinoma (NPC) patients.
Objective. To determine the toxicity of IMRT in NPC patients treated with Helical Tomotherapy (HT) or Linac.

Materials and methods. From August 2009 to August 2013, 38 NPC patients were treated with Linac (32%) and HT (68%), 34 males and 4 females, with a median age of 51 years (range, 15–78years). Tumor stage: I: 5%; II: 18%; III: 34%; IVa: 34%; IVb: 8%, according to AJCC 7th ed. Histopathological analysis revealed that 42% were undifferentiated carcinomas, 26% linfoepiteliomas and 32% squamous cell carcinomas. Median radiation dose of 70 Gy to gross tumor volume and positive neck nodes, 66 Gy to clinical target volume, and 54 Gy to clinically negative neck, in 33 fractions was delivered. Ninety percent of patients received concurrent platinum-based chemotherapy. Side-effects were evaluated according to RTOG criteria.
Results. Acute RTOG complications were: Grade 1–2 in 76% of patients (radiodermatitis $n = 22$, mucositis $n = 17$, nausea $n = 1$, aplasia $n = 1$), Grade 3 in 58% (radiodermatitis $n = 5$, mucositis $n = 20$, aplasia $n = 1$), Grade 4 in 11% (aplasia: $n = 4$). Late RTOG complications were: Grade 1–2 in 74% (xerostomia $n = 28$), Grade 3 in 11% (xerostomia: $n = 4$) and Grade 4 in 3% (dysphagia $n = 1$). Acute or late Grade 5 complications, mandibular osteorradionecrosis or temporo-mandibular joint dysfunction were not observed. After a median follow-up of 18 months, the 3-year actuarial local, locoregional and distant control rates were 89%, 95%, and 94% respectively and the 3-year actuarial progression free survival and overall survival rates were 72% and 85% respectively.
Conclusions. Effectivity in terms of tolerance is compared favourably with conventional radiotherapy showing in our data excellent rates of tumor response. Not an increase of the acute toxicity and acceptable late toxicity rates support the IMRT in NPC.

http://dx.doi.org/10.1016/j.rpor.2013.03.292

Use of 18FDG PET-CT, IMRT and IGRT in nasopharyngeal carcinoma (NC)

M. García-aranda Pez, P. Ciérvide Jurio, O. Hernando Requejo, E. Sánchez Saugar, J. Valero Albarrán, M. López, A. Rodriguez, G. Potdevin, C. Rubio
Hospital Universitario Madrid Sanchinarro, Servicio de Oncología Radioterápica

Introduction. IMRT, IGRT and 18FDG PET-CT planning in patients with nasopharyngeal carcinoma have shown a contribution not only in the accuracy when outlining target volumes but also in the delivery of the radiation treatment and therefore reducing dose in organs at risk.
Aim. Assess clinical and dosimetric outcomes as well as toxicity in the setting of patients with NC.
Methods. All patients with NC treated with radiotherapy have been included in this analysis.
Results. A total of 18 patients with NC have been treated between April 2008 and September 2012 with radical intention. The average age was 54 years (range 31–70) and the 77.7% of patients had positive nodes at diagnosis. The 94.4% of the sample received concomitant Chemotherapy and 16 out of the 18 (88.9%) used a gastrostomy feeding tube. All the patients received radiation therapy with Steep and Shoot IMRT and planning simulation was performed with 18FDG PET-CT in the 72.2% of the sample. The prescription dose was 66 Gy in 30 fractions with and integrated boost of 2.2 Gy per fraction in areas with macroscopic involvement and 54–60 Gy in 30 fractions of 1.8–2 Gy per fraction in the regions at risk of microscopic spread. IGRT (Cone Beam CT) was used for treatment verification in all the cases. DVH were assessed according to institutional constraints. The mean follow up was 14.6 months (median: 8 months; range: 1.4–51.17 months). 1 year local failure free survival (LFFS) is 100% and the 2-year actuarial LFFS is 75%. G3 and G4 acute mucositis was 50% and 5.6% respectively. The 83.3% completed treatment without interruptions.
Conclusion. IMRT, IGRT and 18FDG PET-CT are perfectly integrated in the clinical management of patients with NC allowing acceptable clinical and dosimetric results.

http://dx.doi.org/10.1016/j.rpor.2013.03.293

Voice quality study in patients with early vocal cord carcinoma

A. Slocker Escarpa[1], M. Pozuelo García[2], J. Contreras Martínez[1], R. Bermudez de Alvear[3], G. Martínez Arquero[2], I. Herruzo Cabrera[1]
[1] *Complejo Hospitalario Carlos Haya, Oncologia Radioterápica*
[2] *Complejo Hospitalario Carlos Haya, Otorrinolaringoloía*
[3] *Complejo Hospitalario Carlos Haya, Profesora de la UMA, Departamento de Radiología y Medicina Física, Oftalmología y Otorrinolaringolog*

Introduction. Early stage glottis cancer can be successfully treated with radiotherapy. The 5-year disease-specific survival rate is 90%. It seems that with treatment by radiotherapy we achieve good rates of local control, nevertheless, we live now in communication era, the success of our treatment depends also on one of the most important parameters in the quality of live for our patients: the preservation of voice quality.
Objective. To present the design of a pioneering prospective study that will analyze with a multidisciplinary approach the functional results (voice quality), oncology results and the quality of life in patients diagnosed of early glottis cancer and treated exclusively with radiation.
Material and methods. Male patients diagnosed of early vocal cord carcinoma (T1–T2 N0M0), in whom radiation therapy is the definitive treatment decided at the Head&Neck tumour-board. The patients will be studied at the voice unit of otolaryngology clinic and will have aerodynamic test, perceptual voice valuation, registration of changes in prosody rhythm, digitized acoustic